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## MEASURING THE FLUCTUATIONS OF EMPLOYMENT IN THE OHIO CONSTRUCTION INDUSTRY


**By Ralph J. Watkins**



[Reprinted by permission from the *Journal of the American Statistical Association*, March, 1927.]*


The significant position which the construction industry occupies in the economic life of the nation has been pointed out on numerous occasions within the last few years. This position is due both to its absolute importance in its own right and to its position as the demand-industry for a host of other industries. The relative standing of the construction industry in Ohio is shown in Chart I.

**CHART I**

**TEN LEADING GROUPS OF INDUSTRIES IN OHIO**
**Measured by Total Wage and Salary Payments, 1923**

The measuring stick is the total wage and salary payments of the several industries, as shown by the obligatory reports submitted to the Ohio Industrial Commission by all employers normally employing five or more persons. All industries are covered except interstate railroads. Agriculture is, of course, not properly represented, since few farmers employ normally five or more persons. The high rank of the construction industry is significant. In view of the unique importance of the industry, the absence of national series reflecting the fluctuations of construction employment has been generally regretted.

The reason usually advanced for the absence of such employment series is the chaotic condition of the construction industry. It is pointed out that there are thousands of small-scale operators and, further, that their operations are scattered and not confined to a given plant. To secure an adequate sample which would reflect faithfully the fluctuations of the entire industry has been regarded as impracticable. However, it has been found upon investigation, as in so many other cases, that the facts of the industry when properly sifted do yield some order.

The number of construction firms reporting to the Ohio Industrial Commission in 1923 was 5,883, and of this number 2,185 were classified as general contracting firms. It has been found that the indices of seasonal variation of "All Construction" employment and "General Contracting" employment are almost identical. These indices, computed by identical methods, are shown in Chart II and Table I.

**CHART II**

**SEASONAL FLUCTUATION IN EMPLOYMENT OF WAGE EARNERS**
**General Contracting and All Construction, State of Ohio, 1914-1924**

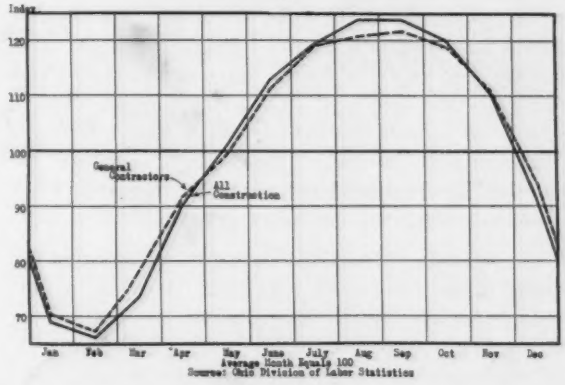



**TABLE I**

**INDICES OF SEASONAL VARIATION IN EMPLOYMENT OF WAGE-EARNERS**

**General Contracting and All Construction, State of Ohio Period Covered 1914-1924**

| Month | All construction | General contracting |
|---|---|---|
| January | 68.8 | 70.3 |
| February | 66.2 | 67.3 |
| March | 73.5 | 74.9 |
| April | 90.2 | 91.6 |
| May | 100.8 | 99.2 |
| June | 112.8 | 111.2 |
| July | 119.2 | 118.9 |
| August | 123.3 | 120.8 |
| September | 123.4 | 121.5 |
| October | 119.9 | 118.7 |
| November | 110.1 | 110.9 |
| December | 91.6 | 94.7 |

*The indices for 1926 have been revised on the basis of more complete reports and these revisions are shown here.

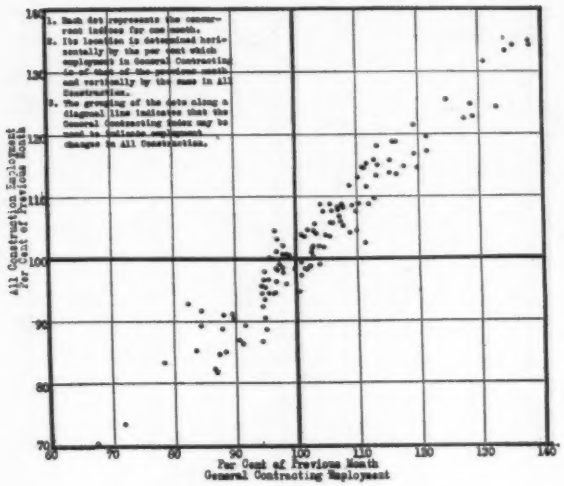
The correspondence between the fluctuations of the two series is even better shown in Chart III.

**CHART III**

**SCATTER DIAGRAM OF MONTHLY LINK-RELATIVES**

**General Contracting and All Construction Employment, State of Ohio, January, 1914-December, 1924**

January—December Relatives Not Plotted




In this scatter diagram the concurrent link-relatives of the two series are plotted against each other. It is readily seen that the fluctuations are practically synchronous and uniform. These facts suggest that a group of general contracting firms should afford a representative sample. This greatly simplifies the problem since general contracting is carried on much more extensively by the larger organizations.

The records of the Ohio Industrial Commission are complete for the period 1914-1924, inclusive. These records, among other things, show the number of wage-earners employed on the 15th of each month by all employers normally employing five or more persons. It will be recognized at once that these records in the case of the construction industry supply highly important information in regard to seasonal fluctuations of employment in the industry. Unfortunately, the data are not comparable from year to year. The reports for the entire year are collected at the close of each year and the compliance apparently varies considerably from year to year, since the number of reporting firms varies widely. Not all of this variation can be charged to changes in business conditions. The series then are not comparable from year to year but are strictly comparable within a given year, since the report for that year is based on the records of identical firms. Because of this situation, the data are not subject to the usual methods of analysis for determination of indices of seasonal variation.

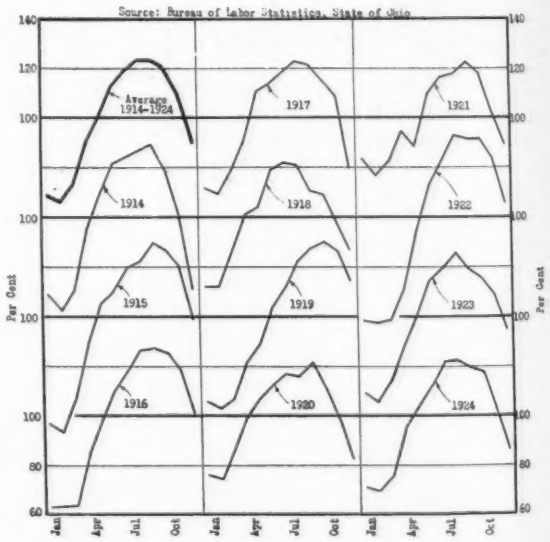
There is a method, however, which can be relied on to yield fairly satisfactory results. Each year can be put on its own base and monthly indices for that year computed on the basis of the average month for that year as 100. This can be done for the eleven years and an average index for each calendar month can be computed from the eleven indices. This is the method in Chart II and Table I. This is, of course, not the which was followed in computing the indices shown best method of arriving at a seasonal index, for the reason that the method makes no provision for adjusting the indices for the secular trend influence. However, the averaging of the eleven indices for each calendar month fairly effectively eliminates the trend factor in view of the fact that the period 1914-1924 was one of pronounced ups and downs. The consistent character of the seasonal movement in construction employment is graphically shown in Chart IV. It will be noted that the general direction of the seasonal curve is apparent in all years, whether they be years of depression or years of prosperity.

**CHART IV**

**SEASONAL INDICES OF EMPLOYMENT IN THE OHIO CONSTRUCTION INDUSTRY**

**For Individual Years 1914-1924**

Average Month in Each Year Equals 100




The industry is so consistent in its seasonal movement that the choice of an average to represent the seasonal movement, on the basis of the method described, raised no difficult problem. The arithmetic mean was used, but, as will be seen from Table II, the geometric mean or the median would have given practically the same results.

**TABLE II**

**INDICES OF SEASONAL VARIATION IN EMPLOYMENT OF WAGE-EARNERS**

**All Construction and General Contracting, State of Ohio**
**Period Covered 1914-1924**

| Month | All construction | | | General contracting | | |
|---|---|---|---|---|---|---|
| | Arithmetic mean | Geometric mean | Median | Arithmetic mean | Geometric mean | Median |
| January | 68.8 | 68.3 | 69.9 | 70.2 | 69.7 | 72.4 |
| February | 66.2 | 65.8 | 66.0 | 67.3 | 66.9 | 69.3 |
| March | 73.5 | 73.0 | 74.9 | 74.9 | 74.4 | 79.6 |
| April | 90.2 | 89.8 | 90.9 | 91.5 | 91.6 | 93.6 |
| May | 100.8 | 100.6 | 103.9 | 99.2 | 99.3 | 103.1 |
| June | 112.8 | 112.6 | 112.9 | 111.2 | 111.7 | 111.4 |
| July | 119.2 | 119.2 | 120.2 | 118.9 | 119.5 | 117.3 |
| August | 123.3 | 123.2 | 122.7 | 120.8 | 121.4 | 119.4 |
| September | 123.4 | 123.3 | 122.7 | 119.7 | 122.0 | 122.2 |
| October | 119.9 | 119.7 | 118.3 | 118.8 | 119.1 | 113.9 |
| November | 110.1 | 109.6 | 108.7 | 110.9 | 110.7 | 103.4 |
| December | 91.6 | 90.7 | 89.0 | 94.7 | 93.9 | 94.3 |

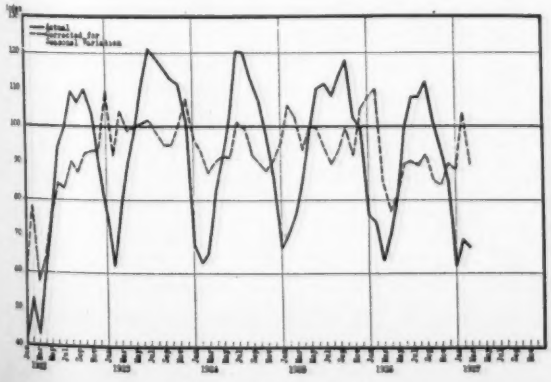
The records of the Ohio Industrial Commission on which the seasonal index is based do not reflect accurately the year to year fluctuations in construction employment in Ohio because they are not entirely comparable from year to year. The series described below was made possible by the cooperation of a group of general contractors. The general contractor membership lists of the Builders' Exchanges of Ohio were secured, and about 120 of these firms constitute the cooperating group. These firms have supplied their figures for the current year, and the employment records of most of these firms were secured through a coding arrangement from the individual files of the Ohio Division of Labor Statistics covering the period January, 1922, to December, 1925, inclusive. The actual and the seasonally corrected series are shown in Chart V and Table III. In order to correspond with the national employment series the average month of 1923 has been selected as the base period. The seasonal index used in correcting the actual series is the general contracting index shown in Chart II and Table I.

**CHART V**

**EMPLOYMENT IN THE OHIO CONSTRUCTION INDUSTRY**

**Since January, 1922**

Average Month 1923 Equals 100




The series from January, 1923, to December, 1925, inclusive, is based on the employment record of 81 identical firms. The 1922 indices are based on the record of 73 of these 81 firms. The December, 1922, index was spliced onto the January, 1923, index on the basis of the ratio of change shown by the employment aggregates of the same 73 firms in both months. The index numbers for the other months of 1922 were chained to December, 1922.

The 1926 and 1927 indices present some difficulties. About 120 firms are cooperating during the current months and only 81 of these are represented in the 1923 base. Further, there are slight fluctuations in the number of reports received in time for monthly publication. The problem has been solved by the usual splicing method. The index for the current month is computed by determining the ratio of increase or decrease shown by the aggregates of the reports from identical firms and applying this ratio to the index for the preceding month. The number of firms represented in the indices for the months of 1926 has varied from 108 to 127. The index for the last month is preliminary and is sometimes changed slightly by the inclusion of the late reports. These series are published about the middle of each month in the Bulletin of Business Research.

The representative character of this employment index is shown graphically in Chart VI. The test covers the years 1922, 1923, and 1924 only because later complete records are not yet available. It will be noted that the Bureau's index is compared with the indices representing all construction employment and

## TABLE III

### INDICES OF EMPLOYMENT IN THE OHIO CONSTRUCTION INDUSTRY

January, 1922—March, 1927
Average Month 1923=100

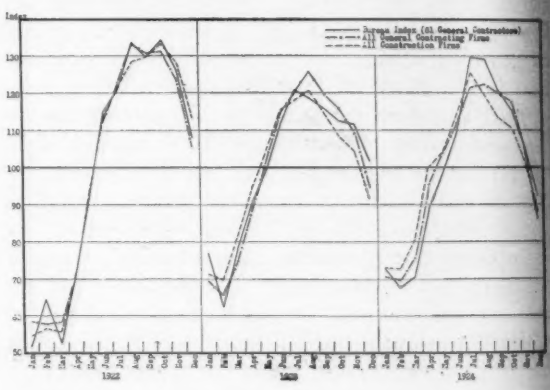
| Month | 1922 | | 1923 | | 1924 | | 1925 | | 1926 | | 1927 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Actual | Corrected for seasonal variation | Actual | Corrected for seasonal variation | Actual | Corrected for seasonal variation | Actual | Corrected for seasonal variation | Actual | Corrected for seasonal variation | Actual | Corrected for seasonal variation |
| January | 42.6 | 60.6 | 77.0 | 109.5 | 67.8 | 96.5 | 67.1 | 95.5 | 76.0 | 108.1 | 76.0 | 88.4 |
| February | 52.6 | 78.2 | 62.1 | 92.3 | 62.8 | 93.3 | 71.2 | 105.8 | 74.1 | 110.1 | 69.4 | 103.2 |
| March | 43.0 | 57.4 | 78.2 | 104.4 | 65.6 | 87.6 | 76.9 | 102.6 | 63.6 | 85.0 | 67.1 | 89.6 |
| April | 58.7 | 64.1 | 90.4 | 98.7 | 82.8 | 90.4 | 85.7 | 93.6 | 70.6 | 77.1 | | |
| May | 75.8 | 76.4 | 99.4 | 100.2 | 91.4 | 92.1 | 99.4 | 100.2 | 81.7 | 82.3 | | |
| June | 94.2 | 84.8 | 111.9 | 100.7 | 102.0 | 91.8 | 110.3 | 99.3 | 100.0 | 89.9 | | |
| July | 99.3 | 83.5 | 120.9 | 101.7 | 120.4 | 101.2 | 111.5 | 93.8 | 107.7 | 90.6 | | |
| August | 109.4 | 90.6 | 118.7 | 98.3 | 120.1 | 99.4 | 108.4 | 89.8 | 108.0 | 89.4 | | |
| September | 106.4 | 87.6 | 115.6 | 95.1 | 112.2 | 92.3 | 113.7 | 93.6 | 112.1 | 92.2 | | |
| October | 110.0 | 92.6 | 112.8 | 94.9 | 107.1 | 90.2 | 117.9 | 99.3 | 101.4 | 85.5 | | |
| November | 103.5 | 93.3 | 111.5 | 100.6 | 97.6 | 88.1 | 102.2 | 92.2 | 93.6 | 84.4 | | |
| December | 88.6 | 93.5 | 101.6 | 107.3 | 86.0 | 90.8 | 99.5 | 105.1 | 85.2 | 90.0 | | |

all general contracting employment in Ohio in the designated years. Each series in each year is placed on its own base—the average month of the given year. It was necessary to do this because, as pointed out above, the complete records are not entirely comparable from year to year. The close relationship between the fluctuations of the three curves is apparent. This raises the question as to the relative size of the sample. The Ohio Industrial Commission for 1924 received reports from 7,364 construction firms, and 2,771 of these were general contracting firms. The sample for 1924 is based on reports from 81 firms. A more significant comparison can be made by comparing the numbers of wage-earners represented by these firms. The average monthly number of wage-earners employed in 1924 by all construction firms reporting to the Ohio Industrial Commission was 69,839, by all general contracting firms was 29,921, and by the list of 81 firms was 3,779. The sample then represented 5.4 per cent of all construction employment and 12.6 per cent of all general contracting employment. For June, 1926, the number of wage-earners reported by the list of firms was 7,478. This figure represents 10.0 per cent of the number reported by all construction firms and 22.9 per cent of the number reported by all general contracting firms in June, 1924. The 1925 records for comparison are not yet available.

### CHART VI

### COMPARISON OF EMPLOYMENT INDICES, OHIO CONSTRUCTION INDUSTRY

Average Month for Each Year Equals 100 in Each Series



SUPPLEMENT TO THE
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OHIO STATE UNIVERSITY, COLUMBUS

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## REAL ESTATE VACANCIES

### Significance of Vacancies

In the real estate field there is not now available a current month-to-month comparison of the demand and supply situation with respect to building space. There is a suggestion of increasing vacancies in residence, business, or industrial building properties from time to time, but no satisfactory index of the extent of this vacancy.

If this information were fully available and showed increasing vacancies in residence or other property this situation would not mean, in every case, that no further building should be undertaken. The existence of vacant residence property is not necessarily a sufficient reason why one who wishes to build a home for himself should not build it. The vacant property or property for sale may not satisfy the needs of the individuals desiring homes. It is possible that some properties will be vacant indefinitely because they do not supply the needs of those wishing to rent or buy.

However, growing vacancies of residence property should be examined carefully by prospective builders or purchasers of apartment houses or other residences, if they consider investing in rental property. Contractors building houses for rent or sale without definite provision in advance for an occupant or buyer incur larger risk when there are increasing vacancies in similar property already available. Vacancies are also of interest to those purchasing property for sale. If good rental property is available, the demand of prospective home buyers or even home builders may be less urgent.

An index of vacancies is also of interest from the standpoint of its relation to the upward or downward tendency of rents and in its relation to the volume of contracts awarded. The vacancy data so far secured are neither sufficiently extensive nor authoritative to answer all these questions. They do, however, suggest certain tendencies and certain relationships.

### Sources and Treatment of Gas Meter Vacancy Data

The gas meter vacancy data have been furnished through the courtesy of the East Ohio Gas Company of Cleveland, and its allied companies in Akron, Canton and Youngstown; the Columbus Gas & Fuel Company and the Federal Gas & Fuel Company of Columbus; and the Union Gas & Electric Company of Cincinnati. The companies in Cleveland, Akron, Canton, and Youngstown classify meters as "active accounts," and "no consumption accounts." The "no consumption account" includes all those meters showing a consumption of less than 1000 cubic feet in any month. This would involve some meters locked for short periods on account of the absence of the occupant. The elimination of the seasonal variation from the curve tends to correct to a large extent for these temporary vacancies since they occur mainly in the summer months. The data from Columbus and Cincinnati are more accurate for the purpose of determining real estate vacancies since the companies in these cities include as idle meters only the contract cancellations. All the charts on gas meter vacancies have been corrected for seasonal variation.

### Vacancies and Volume of Contracts Awarded in Akron

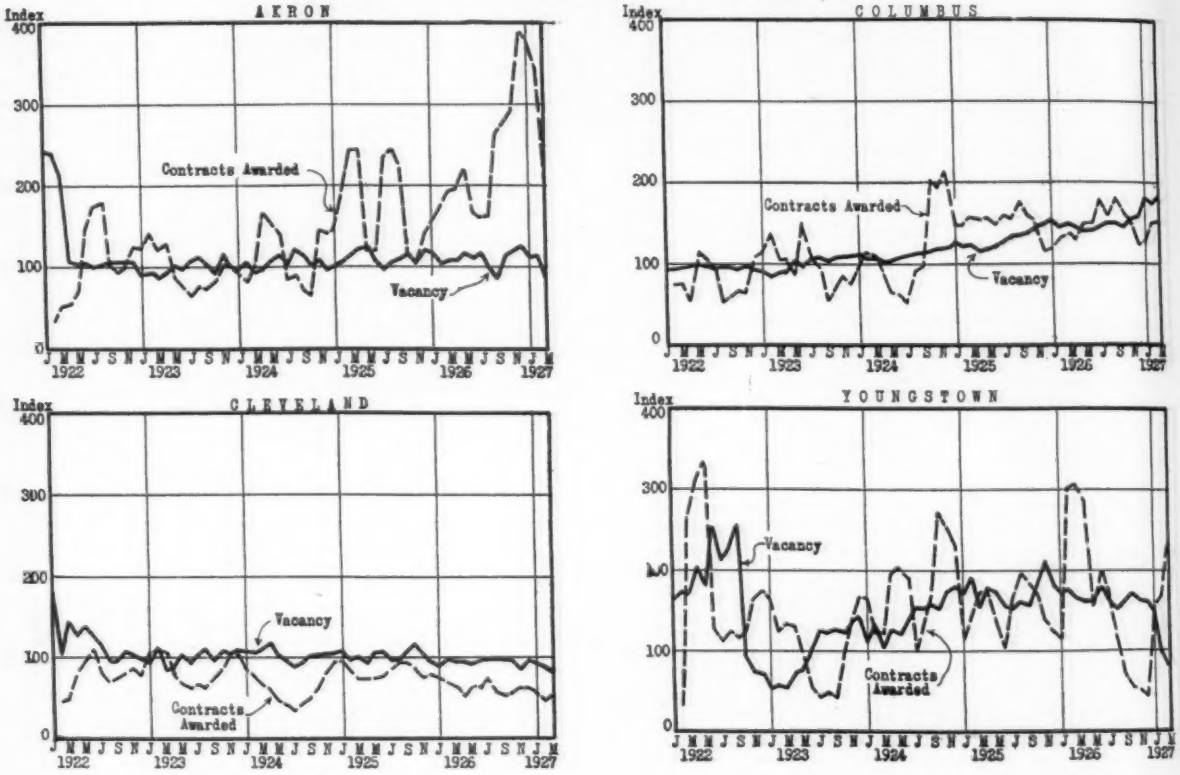
In Chart I it appears that resident vacancies, as measured by gas meter vacancies, dropped to a comparatively low level in Akron during the industrial recovery of 1922. The gas meter record of vacancies indicates slight fluctuations of the index about the average of gas meter vacancies of 1923 during the period since that date. In the spring of 1927 the gas meter index fell to its lowest point since 1923. So far as the demand for residence buildings is involved, there would seem to be little reason for a drop in the volume of contracts awarded in Akron. The fluctuations in the total of building floor space has probably been due mainly to other causes such as cost of construction, interest rates, and industrial development. However, the low percentage of vacancies in Akron has probably had some stimulating effect on construction.

The Bureau has just received a vacancy report of the Akron Real Estate Board completed in May from which we quote as follows: "The report shows available living quarters vacant in Akron is 1485. Authorities state that normal vacancy in any city is 5 per cent. Taking the population of Akron, 210,000, and figuring 4½ people to a family, a normal condition would be 2333 vacancies."

### Vacancies and Contracts Awarded in Cleveland

The gas meter index of residence vacancies in Cleveland resembles that of Akron. There was a decline in the index in 1922, slight fluctuations about the 1923 average since that time, and a declining tendency in 1926 and 1927. The index of vacancies is so low in Cleveland that the Bureau questioned, at first, the accuracy of the data. After the Bureau's representative had interviewed real estate firms in Cleveland and others who are well informed, it appears that current opinion in Cleveland sustains the indications of the gas

**CHART I**
**BUILDING VACANCY AND FLOOR SPACE OF CONSTRUCTION CONTRACTS AWARDED IN OHIO CITIES**
**January 1922 to March 1927**
In Each Series Average Month 1923 Equals 100
All Series Corrected for Normal Seasonal Variation
Contracts Series Smoothed by a 3 Months' Moving Average
Source: Local Gas Companies and F. W. Dodge Corporation




meter records that vacancies in residence property are low in Cleveland. On the other hand, business vacancies are said to be high in Cleveland. The Board of Revision of Cuyahoga county made counts of store or store and office space vacancies and reported as follows: 9.2 per cent vacancy in December, 1925; 11.75 per cent vacancy in August, 1926; and 12.2 per cent vacancy in January, 1927. Chart I, which shows the index of gas meter vacancies affecting mainly residence property, indicates a contrary tendency. Reference to Chart I, page 2, will reveal the fact that the tendency of the volume of floor space of contracts awarded in Cleveland has been below that of the state as a whole. This fact tends to confirm the opinion expressed in the February Supplement to the Bulletin of Business Research that the volume of building is not sensitive to vacancy situations. A chart in the May *Clevelander* shows that from 1924 to 1927 the decline in building permits for residential purposes is greater than the decline in permits for business and industrial purposes. The trend of vacancies would suggest a contrary emphasis in the building program.

**Rents and Vacancies in Cleveland**

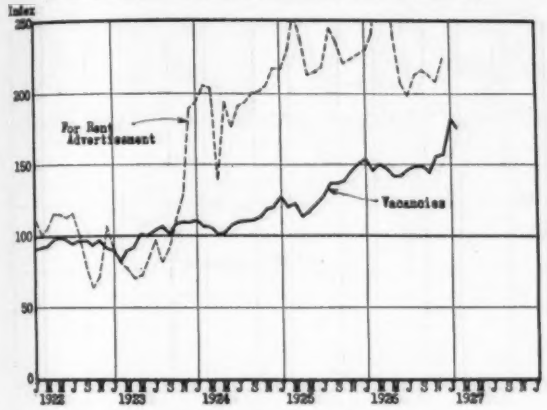
On general grounds it would be expected that the tendency of rents would be rather sensitive to the tendency of vacancies. Chart III on residential rent in Cleveland does not sustain this view. On the other hand, rent is much more sensitive to the cost of construction (see Chart III). Moreover, as shown in the supplement of February, 1927, referred to above, the volume of construction is also more sensitive to the cost factor. Cleveland is a thoroughly unionized city so far as building is concerned. In the winter and spring of 1926 strike disturbances prevailed in the building trades there. It is difficult to say to what extent these matters may have affected the volume of building. Cost of construction in Cleveland may, therefore, average somewhat higher than the average costs for the Pittsburg district. The reader can judge roughly the extent to which the rent curve is sensitive to cost of construction and lacks sensitiveness to vacancies by reference to Chart III.

**Vacancies and Contracts Awarded in Columbus**

The index of gas meter vacancies is higher in Columbus than it is for any other of the four cities of Chart I. It is possible that vacancies in residence property in Columbus are now sufficiently high that they are beginning to affect the volume of floor space

**CHART II**
**INDICES OF FOR-RENT ADVERTISING* AND PERCENTAGE OF GAS METERS VACANT IN COLUMBUS 1922-1926**

Both Series Corrected for Normal Seasonal Variation
In Each Series Average Month 1923 Equals 100




*Deflated by total number of gas meters.

of contracts awarded. The facts are not conclusive, however, and the effect (if it exists) does not seem highly significant if all four of the charts are examined with regard to the point in question. In so far as home building contemplates occupancy by the owner, this can safely go forward from the point of view of the parties to the building contract if the owner is able to meet the obligations which he incurs. The vacant meter situation in the city, however, should lay emphasis on building by prospective owners instead of by speculators or investors in rental properties.

**Vacant Meters and Rent Advertising in Columbus**

In Chart II there is presented an index of rent advertisements in the Columbus *Dispatch* in comparison with the gas meter vacancy index. Even after the index of advertisements is adjusted so as to represent a ratio to total gas meters (to correct for the growth factor) the upward trend of the advertising is much more rapid than the upward movement of gas meter vacancies. There seems to be some tendency for the upward or downward movements in the gas meter index to precede similar movements in advertising. But there is not a close correlation between the movements reflected by the two curves. This indicates that the number of rent advertisements is not a reliable index to residence vacancies as indicated by gas meter vacancies. The gas meter vacancy record should be of some value to newspapers in anticipating an increase in demand for rental space and suggest a profitable direction for sales effort.

**The Percentages of Vacancies in the Four Cities**

The table below shows the percentage of gas meter vacancies for the various cities. These percentages are not as reliable as the vacancy index because the data are not recorded in exactly the same way in the various cities. The record entries are consistent for each city and hence the index should show the relative fluctuations in each city satisfactorily. The opinions of real estate operators are solicited as to data which may be available in the respective localities for testing the value of these percentages of vacancy. Because of lack of experience in the use of these gas meter vacancies, as indices of residence vacancies, caution should be exercised until further confirmatory evidence is available.

**Per Cent of Total Gas Meters Vacant**

| City | Percentage |
|---|---|
| Cleveland Metropolitan Area, March 1927 | 1.31 |
| City of Cleveland, March 1927 | 1.13 |
| Akron, March 1927 | 2.46 |
| Youngstown, March 1927 | 2.00 |
| Canton, March 1927 | 3.29 |
| Cincinnati, March 1927 | 2.94 |
| Columbus, March 1927 | 9.03 |

On April 14, 1927, the U. S. Postoffice at Columbus, through its mail delivery service, made a count of vacancies in the city as follows:

| | |
|---|---|
| Number of vacant residences (including apartments) in the City of Columbus, including Grandview, Upper Arlington, and Bexley | 4238 |
| Number of vacant storerooms, same territory | 729 |
| Total number of vacancies | 4967 |

Mr. Fred H. Tibbetts, the postmaster, said in regard to this survey:

"This survey was made by requiring each carrier to tabulate carefully the vacancies in his district, and we have every reason to feel that the figures represent a true and accurate statement of the actual conditions existing on the date stated."

A vacancy survey under the supervision of the Real Estate Board of Columbus which was completed not far from the same date as that taken by the postoffice showed 4884 vacancies, as follows:

| | |
|---|---|
| Singles under construction | 444 |
| Singles new complete | 414 |
| Singles old | 748 |
| Doubles under construction( living units) | 302 |
| Doubles new complete (living units) | 307 |
| Doubles old (living units) | 938 |
| Apartments under construction (living units) | 127 |
| Apartments new complete (living units) | 136 |
| Apartments old (living units) | 794 |
| Total available living units when construction represented in above figures is completed | 4210 |
| Vacant storerooms | 674 |
| Total number of vacancies | 4884 |

Taking the average of these two reports (4925) and dividing it by the total number of gas meters, the percentage of vacancy is 6.45. It was further stated

in connection with the Real Estate survey that approximately 5 per cent of the vacancies are not livable and that many of them are not desirable.

The actual number of gas meters on March 31 was 75,723 and the reported vacancies were 6,836. This excess of 1,911 in gas meter vacancies over the average of two counts of vacancies is thought to be due mainly to *temporary* gas meter vacancies, which would not be included in the counts. This indicates that as an absolute measure of vacancies gas meters are not satisfactory, but the fact that the temporary vacancies are a continuous factor in the series will make the series satisfactory as an index showing the trend of vacancies.

**Building and Rental Condition Survey by American Bond and Mortgage Company**

The American Bond and Mortgage Company has collected information through questionnaires from Ohio cities on building and rental conditions as follows:

CITIES REPORTING STRUCTURES OVERBUILT

ALLIANCE: Apartments, office buildings; LORAIN: Office buildings; NILES: Theaters; CLEVELAND: Small apartments, outlying commercial buildings; SALEM: Apartments, dwellings, theaters; EAST CLEVELAND: Commercial buildings; CANTON: Apartments, office buildings; MOUNT VERNON: Commercial buildings; NEWARK: Dwellings; DELAWARE: Office buildings; COLUMBUS: Apartments, hotels, theaters, office buildings, commercial buildings, single dwellings; FINDLAY: Theaters, office buildings, commercial buildings, dwellings; LAKEWOOD: Apartments, commercial buildings, office buildings.

CITIES REPORTING STRUCTURES NEEDED

ALLIANCE: Hotels, dwellings; LORAIN: Apartment dwellings, theaters; ZANESVILLE: Dwellings; NILES: Hotels, commercial buildings; HAMILTON: Apartments, theaters, dwellings, office buildings; CLEVELAND: Dwellings; SALEM: Hotels, office buildings, commercial buildings; ELYRIA: Apartments, dwellings; PORTSMOUTH: Apartments; MARION: Office buildings, commercial buildings; CHILLICOTHE: Hotels; AKRON: Apartments, hotels, dwellings; FINDLAY: Apartments, hotels; LAKEWOOD: Hotels, dwellings; CINCINNATI: Dwellings, office buildings.

CITIES REPORTING RESIDENTIAL RENTS STABILIZED

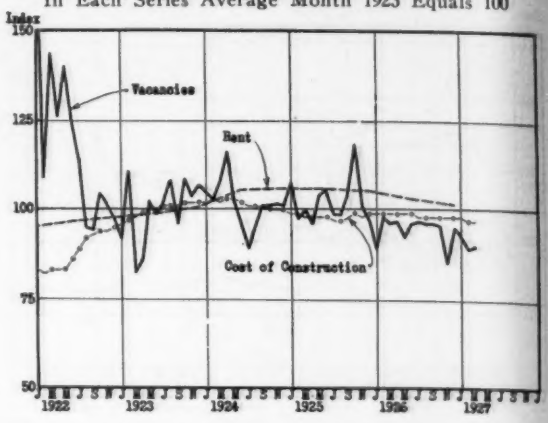
Alliance, Springfield, Niles, Youngstown, Salem, East Cleveland, Canton, Medina, Portsmouth, Bryan, Chillicothe, Columbus.

CITIES REPORTING RESIDENTIAL RENTS UP

Zanesville, Hamilton, Cleveland, Elyria, Marion, Mount Vernon, Newark, Findlay, Cincinnati.

**CHART III**
**INDICES OF GAS METERS VACANT AND RENT IN CLEVELAND AND OF COST OF CONSTRUCTION IN THE PITTSBURGH DISTRICT, 1922-1927**

All Series Corrected for Normal Seasonal Variation
In Each Series Average Month 1923 Equals 100




CITIES REPORTING RESIDENTIAL RENTS DOWN

Lorain, Delaware.

CITIES REPORTING BUSINESS RENTS STABILIZED

Alliance, Lorain, Springfield, Niles, Youngstown, Hamilton, Salem, East Cleveland, Canton, Elyria, Medina, Portsmouth, Bryan, Marion, Mount Vernon, Chillicothe, Columbus, Akron, Lakewood, Cincinnati, Dayton.

CITIES REPORTING BUSINESS RENTS UP

None.

CITIES REPORTING BUSINESS RENTS DOWN

Zanesville, Cleveland, Newark, Delaware, Findlay.

**Summary**

It appears that general emphasis on excessive building during 1927 has exaggerated the current vacancy situation as it affects Ohio. Vacancies under 5 per cent would not be commonly thought of as high vacancies.

Reference to the industrial employment chart, page 2, shows increasing employment in 1922 concurrently with the declining vacancies in various cities. This suggests that vacancy percentages are sensitive to the employment situation in the localities affected. The increase in contracts awarded in Akron from 1925 to date has not increased vacancies in residence property according to Chart I. Chart III shows that declining vacancies may not cause an upturn in rents but that declining construction costs are likely to be quickly reflected in a decline in rents. All these conclusions are tentative because of the limited data examined. The assembly of vacancy data confirms the impression that in the state as a whole vacancies have not become high enough to be of great significance in slowing down the volume of building contracts.